

WHAT IS CLAIMED IS:

1. A composition comprising an isolated or recombinant peptide comprising a subsequence of a Class II major histocompatibility molecule, wherein the peptide has the following properties,

(a) having a structure comprising $R_1 - R_2 - R_3 - R_4 - R_5 - R_6 - R_7 - R_8 - R_9 - R_{10} - R_{11} - R_{12} - R_{13} - R_{14} - R_{15} - R_{16}$,

wherein R_1 is Gln, Lys, or Arg; R_2 is Arg; R_3 and R_4 are members independently selected from the group consisting of all amino acids; R_5 is Ala, Glu, Asp, Val, Leu or Ile; R_6 and R_7 are members independently selected from the group consisting of all amino acids; R_8 is Thr; $R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}$, and R_{15} are members independently selected from the group consisting of all amino acids; and, R_{16} is Val;

(b) capable of generating an immune response to a non-Hodgkin's B cell lymphoma cell.

2. The composition of claim 1, wherein R_1 is Gln, Lys, or Arg; R_2 is Arg; R_3 is Arg; R_4 is selected from the group consisting of all amino acids; R_5 is Ala; R_6 and R_7 are members independently selected from the group consisting of all amino acids; R_8 is Thr; R_9 is selected from the group consisting of all amino acids; R_{10} is Cys; $R_{11}, R_{12}, R_{13}, R_{14}$, and R_{15} are members independently selected from the group consisting of all amino acids; and, R_{16} is Val.

3. The composition of claim 2, wherein R_1 is Gln, Lys, or Arg; R_2 is Arg; R_3 is Arg; R_4 is Ala; R_5 is Ala; R_6 is Val; R_7 is Asp; R_8 is Thr; R_9 is Tyr; R_{10} is Cys; R_{11} is Arg; R_{12} is His; R_{13} is Asn; R_{14} is Tyr; R_{15} is Gly, and R_{16} is Val.

4. The composition of claim 1, further comprising a pharmaceutically acceptable excipient.

5. The composition of claim 1, further comprising an adjuvant.

6. The composition of claim 1, wherein the non-Hodgkin's lymphoma cell is selected from the group consisting of a B-cell chronic lymphocytic leukemia/small lymphocytic lymphoma (B-CCL/SLL) cell, a lymphoplasmacytoid lymphoma (LPL) cell, a follicular

lymphoma (FL) cell, a mucosa-associated lymphoid tissue lymphoma (MALTL) cell, a splenic lymphoma with villous lymphocytes (SLVL) cell and a mantle cell lymphoma cell.

7. A method for detecting a nucleic acid in a biological sample, wherein the nucleic acid encodes a peptide capable of specifically binding to a Lym-1 antibody, the method comprising the following steps:

(a) contacting the sample with an oligonucleotide primer pair capable of amplifying a subsequence of an MHC nucleic acid, which subsequence encodes a polypeptide comprising a peptide of claim 1,

(b) amplifying the nucleic acid; and

(c) detecting the amplified nucleic acid.

8. The method of claim 7, wherein the MHC gene is HLA-DR 10.

9. The method of claim 7, wherein the subsequence encodes a peptide wherein R₁ is Gln, Lys, or Arg; R₂ is Arg; R₃ is Arg; R₄ is Ala; R₅ is Ala; R₆ is Val; R₇ is Asp; R₈ is Thr; R₉ is Tyr; R₁₀ is Cys; R₁₁ is Arg; R₁₂ is His; R₁₃ is Asn; R₁₄ is Tyr; R₁₅ is Gly, and R₁₆ is Val.

10. The method of claim 7, wherein the biological sample comprises a B cell.

11. The method of claim 10, wherein the B cell is a B lymphocytic non-Hodgkin's lymphoma cell.

12. The method of claim 11, wherein the non-Hodgkin's lymphoma cell is selected from the group consisting of a B-cell chronic lymphocytic leukemia/small lymphocytic lymphoma (B-CCL/SLL) cell, a lymphoplasmacytoid lymphoma (LPL) cell, a follicular lymphoma (FL) cell, a mucosa-associated lymphoid tissue lymphoma (MALTL) cell, a splenic lymphoma with villous lymphocytes (SLVL) cell and a mantle cell lymphoma cell.

13. The method of claim 7, wherein the biological sample is a body fluid sample or a biopsy sample.

14. The method of claim 13, wherein the body fluid sample is a blood sample.

15. A kit for detecting a nucleic acid in a biological sample, wherein the nucleic acid encodes a peptide capable of specifically binding to a Lym-1 antibody, comprising an oligonucleotide primer pair capable of amplifying a subsequence of an MHC gene or gene product, which subsequence encodes a polypeptide comprising a peptide of claim 1.

16. The kit of claim 15, wherein the MHC gene is HLA-DR 10.

17. The kit of claim 15, wherein R₁ is Gln, Lys, or Arg; R₂ is Arg; R₃ is Arg; R₄ is Ala; R₅ is Ala; R₆ is Val; R₇ is Asp; R₈ is Thr; R₉ is Tyr; R₁₀ is Cys; R₁₁ is Arg; R₁₂ is His; R₁₃ is Asn; R₁₄ is Tyr; R₁₅ is Gly, and R₁₆ is Val.

18. The kit of claim 15, further comprising an instructional material teaching a use of the kit, wherein the instructional material indicates that the kit is used for the detection of nucleic acid encoding a peptide reactive with a Lym-1 antibody and that the polypeptide is associated with non-Hodgkin's B cell lymphomas.

19. A method for detecting an antibody reactive with a non-Hodgkin's B cell lymphoma cell, comprising:

- (a) contacting a sample with a composition of claim 1 under immunologically reactive conditions, and
- (a) detecting whether an antibody has specifically bound to the composition.

20. The method of claim 19, wherein the sample is a biological sample.

21. The method of claim 19, wherein R₁ is Gln, Lys, or Arg; R₂ is Arg; R₃ is Arg; R₄ is Ala; R₅ is Ala; R₆ is Val; R₇ is Asp; R₈ is Thr; R₉ is Tyr; R₁₀ is Cys; R₁₁ is Arg; R₁₂ is His; R₁₃ is Asn; R₁₄ is Tyr; R₁₅ is Gly, and R₁₆ is Val.

22. The method of claim 19, wherein the antibody is generated by a recombinant nucleic acid library.

23. The method of claim 22, wherein the recombinant nucleic acid is a phage display library.

24. The method of claim 19, wherein the composition is fixed to a solid surface.

25. A method for generating an antibody reactive with a non-Hodgkin's B cell lymphoma cell, comprising administering an immunogenically effective amount of a composition of
5 claim 1 to a mammal. J

26. The method of claim 22, wherein R₁ is Gln, Lys, or Arg; R₂ is Arg; R₃ is Arg; R₄ is Ala; R₅ is Ala; R₆ is Val; R₇ is Asp; R₈ is Thr; R₉ is Tyr; R₁₀ is Cys; R₁₁ is Arg; R₁₂ is His; R₁₃ is Asn; R₁₄ is Tyr; R₁₅ is Gly, and R₁₆ is Val.

27. The method of claim 25, wherein the non-Hodgkin's lymphoma cell is selected from the group consisting of a B-cell chronic lymphocytic leukemia/small lymphocytic lymphoma (B-CCL/SLL) cell, a lymphoplasmacytoid lymphoma (LPL) cell, a follicular lymphoma (FL) cell, a mucosa-associated lymphoid tissue lymphoma (MALT) cell, a splenic lymphoma with villous lymphocytes (SLVL) cell and a mantle cell lymphoma cell.

28. An immunogenic composition capable of eliciting an immunogenic response directed to a polypeptide epitope, wherein the epitope comprises an amino acid sequence having a structure comprising

R₁ - R₂ - R₃ - R₄ - R₅ - R₆ - R₇ - R₈ - R₉ - R₁₀ - R₁₁ - R₁₂ - R₁₃ - R₁₄ - R₁₅ - R₁₆,

wherein R₁ is Gln, Lys, or Arg; R₂ is Arg; R₃ and R₄ are members independently selected from the group consisting of all amino acids; R₅ is Ala, Glu, Asp, Val, Leu or Ile; R₆ and R₇ are members independently selected from the group consisting of all amino acids; R₈ is Thr; R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, and R₁₅ are members independently
25 selected from the group consisting of all amino acids; and, R₁₆ is Val.

29. The immunogenic composition of claim 28, wherein R₁ is Gln, Lys, or Arg; R₂ is Arg; R₃ is Arg; R₄ is Ala; R₅ is Ala; R₆ is Val; R₇ is Asp; R₈ is Thr; R₉ is Tyr; R₁₀ is Cys; R₁₁ is Arg; R₁₂ is His; R₁₃ is Asn; R₁₄ is Tyr; R₁₅ is Gly, and R₁₆ is Val.

30. The immunogenic composition of claim 28, wherein the immunogenic response generates antibodies specific for the polypeptide epitope.

31. A method of inducing an immunogenic response directed to a polypeptide epitope, comprising administering an immunogenically effective amount of a composition comprising a polypeptide epitope to a mammal,

wherein the epitope comprises an amino acid sequence having a structure

comprising $R_1 - R_2 - R_3 - R_4 - R_5 - R_6 - R_7 - R_8 - R_9 - R_{10} - R_{11} - R_{12} - R_{13} - R_{14} - R_{15} - R_{16}$,

wherein R_1 is Gln, Lys, or Arg; R_2 is Arg; R_3 and R_4 are members independently selected from the group consisting of all amino acids; R_5 is Ala, Glu, Asp, Val, Leu or Ile; R_6 and R_7 are members independently selected from the group consisting of all amino acids; R_8 is Thr; $R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}$, and R_{15} are members independently selected from the group consisting of all amino acids; and, R_{16} is Val.

32. The method of claim 31, wherein R_1 is Gln, Lys, or Arg; R_2 is Arg; R_3 is Arg; R_4 is Ala; R_5 is Ala; R_6 is Val; R_7 is Asp; R_8 is Thr; R_9 is Tyr; R_{10} is Cys; R_{11} is Arg; R_{12} is His; R_{13} is Asn; R_{14} is Tyr; R_{15} is Gly, and R_{16} is Val.

33. The immunogenic composition of claim 31, wherein the immunogenic response generates antibodies specific for the polypeptide epitope.

34. The method of claim 31, wherein the mammal is a human, a mouse or a rabbit.